

**Novobisium (Arachnida, Chelonethida, Neobisiidae, Neobisiinae), a New Genus of Pseudoscorpions Based on *Obisium carolinensis* Banks<sup>1</sup>**

WILLIAM B. MUCHMORE, Department of Biology, University of Rochester, Rochester, New York

The pseudoscorpion genus *Neobisium* was erected by J. C. Chamberlin (1930, p. 11) with the European *Obisium muscorum* Leach as the type species. On the basis of gross morphology, the eastern North American species, *Obisium carolinensis* Banks, was also included in the genus (1930, p. 15).

Recently Vachon and Gabbutt (1964) have made a careful study of the form and development of the cheliceral flagellum in a number of European species of *Neobisium* and the closely related genus, *Roncus*. These authors have demonstrated clearly that the pattern of setae in the flagellum is quite constant in, and is diagnostic for, each of the genera. Also, on the evidence of a figure by Chamberlin (1931, fig. 15E) they note that the flagellar pattern of *Parobisium*, which was only recently elevated to the generic level from a subgenus of *Neobisium* (Chamberlin, 1962), is basically different from that of *Neobisium* and of *Roncus*. Further, they note that another figure by Chamberlin (1931, fig. 15D) indicates that the flagellum of *Neobisium carolinense* (Banks) differs in pattern from that of European species of *Neobisium*. I have made a close study of the cheliceral flagella of numerous specimens from the Appalachian mountains of eastern United States, and find that there is, indeed, a fundamental difference in the pattern of flagellar setae between the European and North American forms assigned to *Neobisium*.

Also, when published figures of chaetotaxies of the male genital opercula in *Neobisium carolinense* (Chamberlin, 1931, fig. 45B and C), *N. muscorum* (Gabbutt, 1965a, fig. 19), *N. car-*

<sup>1</sup> This work was supported in part by a grant, GB5299, from the National Science Foundation.

*penteri* and *N. maritimum* (Gabbutt, 1965b, figs. 33 and 41) are compared, it can be seen that there is a distinct difference between the American and European forms. Study of specimens from the Appalachian region confirms that the configuration of setae shown by Chamberlin is the only one found in American forms. In addition, study of the female genital opercula of American specimens reveals a constant difference between these and the European species of *Neobisium* treated by Gabbutt (1965a, fig. 18; 1965b, figs. 24 and 42).

The differences just mentioned appear to be great enough to warrant separation at the generic level of the European *Neobisium* from the American forms, for which the generic name *Novobisium* is proposed.

#### NOVOBISIUM, new genus

*Type species: Obisium carolinensis* Banks, 1895.

*Description:* With the characteristics of the subfamily Neobisiinae. Carapace subquadrate, a little longer than wide; surface smooth; with a prominent triangular epistome; four well-developed eyes of nearly equal size, the anterior eyes about one and a half ocular diameters from the carapacal margin; a total of about 24 acuminate setae, of which four are at the anterior margin and six to eight along the posterior margin. Abdomen with tergites and sternites entire and smooth; pleural membranes strongly granulate. Cheliceral flagellum composed of a row of eight setae (occasionally seven or nine), of characteristic shapes and sizes (Fig. 1)—the four distal setae are always serrate along the outer two-thirds of their anterior margins and increase gradually in size from distal to proximal; the fifth seta is the longest and is usually smooth, but sometimes weakly serrate along the outer half of its anterior margin; the sixth and seventh setae are always smooth and slightly shorter than the fifth; the most proximal seta is smooth and short, being only about one-third the length of the longest. Spinneret a prominent rounded elevation. Palm of chelicera with six (rarely seven) acuminate

setae. Palp moderately robust. Tactile seta *sb* of the movable chelal finger clearly closer to *b* than to *st*. Tactile setae of fixed chelal finger clearly separated into two groups, with *ist* near *it*, *est* and *et* in the distal half, and *isb*, *ib*, *esb* and *eb* closely grouped at the base of the finger. Legs typical of the subfamily; subterminal tarsal setae deeply but unequally forked, with subsidiary denticles on both branches; tactile seta on tibia at about the middle, on metatarsus in the proximal fifth, and on telotarsus just proximal to the middle of the segment. Chaetotaxy of male genital area as shown in Fig. 2; peculiar to the genus is the row of 10–20 close-set, short, heavy setae on the middle of the anterior margin of the posterior genital operculum. Chaetotaxy of female genital area as shown in figure 3; characteristic of the genus are the two separate groups of from one to four short, delicate setae on the anterior operculum.

*Material examined:* Although no type specimens have been available, a number of specimens from stations near the type localities have been studied, as follows:

Stations within 15 miles of Retreat, Haywood County, North Carolina, type locality of *N. carolinense* (Banks)—1 ♀ from Mt. Pisgah, Haywood County; 1 ♀ from Richland Balsam, Haywood County; 1 ♀ from Cold Mountain, Transylvania County; and 1 ♂ from Water Rock Knob, Jackson County.

Stations within 10 miles of Mt. Le Conte, Sevier County, Tennessee, type locality of *N. tenue* (Chamberlin)—3 ♂ and 4 ♀ from Brushy Mountain, Sevier County; 2 ♀ from Elkmont, Sevier County.

Also, 8 ♂ and 4 ♀ from Mt. Mitchell, Yancey County, North Carolina (cf. Chamberlin, 1962); 6 ♂ and 12 ♀ from various stations in North Carolina, South Carolina, Tennessee, Kentucky, and Virginia.

*Remarks:* Specimens belonging to the genus *Novobisium* have been found only in the Appalachian mountain region from Pennsylvania to Alabama. Three species have been described, namely *N. carolinense* (Banks), *N. tenue* (Chamberlin), and *N. ingratum* (Chamberlin) (cf. Chamberlin, 1962), but material at hand

indicates that much further study is required before the actual numbers, relations, and distributions of the various forms can be clearly understood.

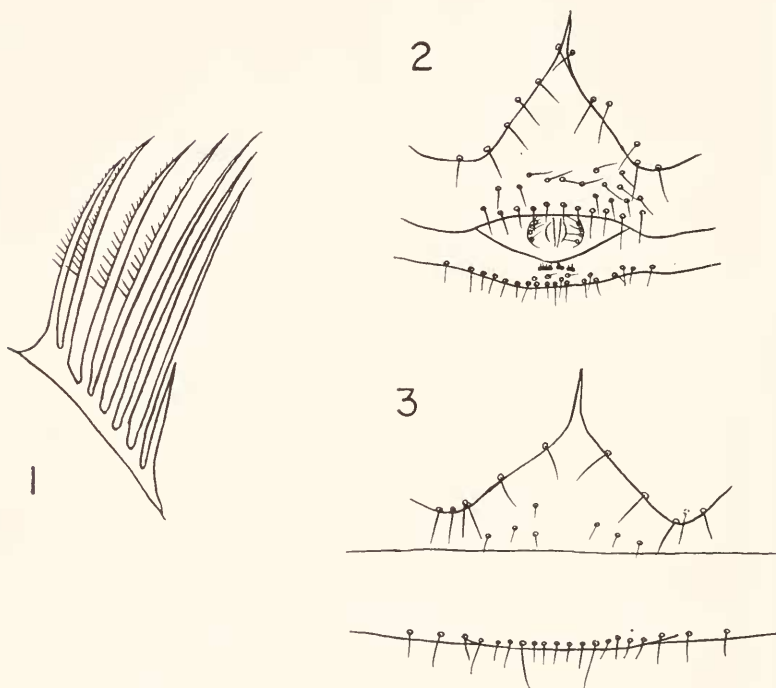


FIG. 1. *Novobisium* sp., ♀, from Brushy Mountain Heath Bald, Sevier County, Tennessee. Ventral view of flagellum of right chelicera. FIG. 2. *Novobisium carolinense*, ♂, from Mount Mitchell, Yancey County, North Carolina. Chaetotaxy of genital area. FIG. 3. *Novobisium* sp., ♀, from Big Black Mountain, Harlan County, Kentucky. Chaetotaxy of genital area.

Comparison of the flagellum of *Novobisium* with that of specimens of *Parobisium* from Utah demonstrates that the two genera are indeed distinct. The flagellum of *Parobisium*, described in detail elsewhere (Muchmore, 1967), is composed of eight setae, all serrate and of nearly equal size.

Adult specimens of the genera *Neobisium* and *Novobisium* can be distinguished by the following combinations of characters:

Cheliceral flagellum with seven to eleven setae, of which only the two distal ones are serrate, the others being smooth and acuminate; posterior genital operculum of male with a patch of small setae across the middle of the anterior edge; anterior genital operculum of female with a group, or row, of setae across the middle of the sternite. . . . . **Neobisium** Chamberlin.

Cheliceral flagellum with eight (rarely seven or nine) setae, of which the distal four (rarely five) are serrate, the others being smooth and acuminate; posterior genital operculum of male with a comb-like row of close-set, short, heavy setae in the center of the anterior edge; anterior genital operculum of female with two separate, small groups of setae, one group on either side of the midline. . . . . **Novobisium**, new genus.

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## A New Species of *Empidideicus* Becker from Texas (Diptera: Bombyliidae)

JACK C. HALL\*

Melander (1946) gave a brief history of *Empidideicus* Becker and at that time described three new species, thereby establishing the genus in North America. Melander's species were re-

\* Department of Biological Control, University of California, Riverside, California 92502.